

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members. Every member of the California Medical Association is invited to submit discussion suitable for publication in this department. No discussion should be over five hundred words in length.

Allergy

Allergy—Impressions Gathered From the Portland Meeting.—There are several general impressions of the progress made in the study of allergy that were evident from the Portland session. The realization that this new field of medicine is firmly grounded was obvious, and that this new subject was given its place along with other branches of medicine is an important advance.

Twenty-five years ago the rôle of infections as a principle cause of disease was emphasized; now the equally important and probably distinct group of diseases, those of hypersensitiveness, is encroaching on the place in pathogenesis held by the infectious group. The conception of this cleavage is not without many opponents who have been attempting to bridge this natural gap with many superficial interpretations of experiments.

The most striking feature of the program was the absence of discussion on the general subject of vaccines. In fact, vaccines were mentioned only to be condemned.

The enormous literature on infection-combatting measures to relieve hypersensitive diseases is rapidly disappearing. In its place we find the elaboration of empirically worked out necessities for diagnosis. The fact that bacteria, in addition to inducing an infection, can be one of the causes of hypersensitiveness may be recognized, but without confusion.

Professor Manwaring's most interesting paper on the "Immunological Prophecy Found in Ancient Hieroglyphics," gave us a perspective of the work. The fallacy of attempting to put into the practice of human immunology the improperly interpreted, incompletely carried out animal experiments was glaring.

Doctor Hurwitz, in sketching the early history of hay fever, impressed us by tracing our so-called modern diagnostic methods back to 1868.

A plea was made for uniform nomenclature of the various trees, weeds, and grasses, for there is an increasing trend toward accurate detailed local flora studies. Such properly conducted local flora studies constitute the cornerstone of successful pollen treatment. It was agreed that Professor Le Roy Abrams' classification should be the standard.

Dr. George Piness clearly emphasized the importance of specific pollen factors in communities where irritating potash dust was thought to be the all-important factor.

Probably the most illuminating paper was that of Dr. Warren T. Vaughn, in which a plea for general medical diagnosis and care be not overshadowed by a specific allergy study in a patient.

Physical allergy was again emphasized, the

explanation resting on Sir Thomas Lewis' work with "H" (most likely histamine) substance.

The question of food allergies was emphasized. The principle feature of the discussion which followed was the enormous importance of history and the relative unimportance of the skin test. It was significant that the use of digestants as a treatment of food allergy, as outlined by Orville H. Brown, was given a most favorable reception. This seems logical, for it is now definitely known that whole protein can pass through the normal intestinal mucous membrane, and it is also well known that even partially digested protein in passing through the normal intestinal mucous membrane may also cause hypersensitive symptoms. There is no evidence that completely digested protein leads to any difficulty, therefore the use of digestants seem rational.

The fundamental problem of the underlying disturbing elements which make certain human beings sensitive remains untouched.

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Medicine

Pituitary Tumors and Skeletal Changes.—

That the pituitary gland has a definite influence on skeletal growth is a well-known fact, based upon abundant experimental and clinical evidence. Its growth hormone is produced by the pars anterior and is necessarily most active during the period of infancy, childhood, and adolescence. While many general or local conditions may influence the function of this organ, tumors arising within its tissues or adjacent to it should be considered as the most important because of the serious effects produced by them. Such lesions in many instances produce striking and profound changes in the skeletal tissues.

Retarded Skeletal Growth.—Any retardation in skeletal development will naturally take place most characteristically during the period when normal changes are most conspicuous and will play a very minor rôle in the syndrome after adult proportions have been reached. Tumors probably always produce such an effect, not by any specific activity of their constituent cells, but rather by a compression atrophy of the normal glandular tissue. This may be the result of either one of two mechanisms. The first, an *indirect and distant* effect, is sometimes associated with tumors of the posterior fossa when obstruction of the ventricular system results in dilatation of the third ventricle. This tends to compress the pituitary body into the sella with more or less atrophy of its tissues. It is also found occasionally in cerebral tumors which produce a similar though less marked effect by distortions produced in the region of the third

ventricle. The second effect is a more *direct and local* one, the normal tissue being compressed against the sellar walls by a tumor arising within the substance of the gland. Inasmuch as *chromophobe adenomas* rarely occur during the growing period, skeletal changes are extremely rare in the symptom complex produced by them.

With *congenital cystic tumors* arising from the remains of the cranio-pharyngeal duct, it is a different story. They usually develop during the growth period, and the gradually enlarging cyst compresses the pituitary and distorts the optic chiasm and the walls of the third ventricle. The syndrome resulting from these anatomical changes is rather characteristic. The child often complains of headaches, and progressive loss of vision with primary optic atrophy ensues. If the onset is early, before the cranial suture lines have become ossified, the head will become enlarged (hydrocephalus). Adiposity and stunted growth are also prominent features. Diminished gonadal function is manifested by a disturbance or loss of menstrual function in the adolescent female and a retardation of the development of the external genitals in the male (Fröhlich's syndrome). Epileptiform convulsions, with other bizarre symptoms, may also be present to complete the clinical picture. *A failure to grow and increasing adiposity, associated with progressive failure of vision in an adolescent should make one very suspicious that this type of lesion is present.* An interesting and unexplainable feature, particularly in the presence of an extensive hydrocephalus, is the mental precociousness of many of the younger victims. A skiagraph of the head in these cases will usually reveal bony changes of the vault accompanying hydrocephalus together with flocculent calcification in or above a normal or enlarged sella.

Exaggerated Skeletal Growth.—The occurrence of hyperpituitarism, as associated with a chromophile adenoma, is a more familiar condition. Should the tumor begin to grow before the epiphyses have become ossified, *gigantism* results. If it develops in middle life, as commonly occurs, the condition is recognized as *acromegaly*. The characteristic bony changes associated with this condition, discernible by clinical and roentgenographic study, are enlargement of the sella turcica, thickening of the bones of the cranial vault, prominence of the supra-orbital ridges due to hypertrophy of the frontal sinuses, mandibular or occasionally maxillary prognathism with spacing of the teeth, tufting of the terminal phalanges, dorsal kyphosis with a large barrel-like chest, exostoses with occasional fusion of the vertebrae, and hypertrophy of the points of muscular attachment.

It is important in any case presenting abnormalities of skeletal growth to investigate the pituitary as a possible source of the difficulty. If a tumor is present there are usually other evidences present which should make the nature of the condition clear.

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Allergy

Bacterial Allergy.—Bacterial allergy is a phase of immunity. It is best known and has been most carefully studied as it appears in relationship to tuberculosis. The reaction was first noticed by Koch and discussed by him in 1890, when he announced the discovery of tuberculin. One of his observations was to the effect that the normal and the infected guinea-pig react differently to an infecting dose of bacilli. This observation was known as the Koch phenomenon. It received very little consideration until the time of von Pirquet in 1907, when he called it *allergy*, meaning altered reaction of the cell.

The condition of cell sensitization upon which bacterial allergy depends is produced when bacterial protein circulating in the blood stream comes in contact with the body cells. It changes them from a condition of indifference to one of sensitivity. It is similar to, yet different from the sensitization which takes place to nonbacterial protein. Much study will probably be necessary before the true nature of the difference is understood. Both are due to the parenteral introduction of protein to the body tissues. The origin of the protein in infection is some bacterial focus within the tissues, while that of the allergic diseases caused by nonbacterial protein is from without the body, the entrance being made through mucous membranes, or the skin.

Cell sensitization and a consequent allergic reaction to future contacts between the body cells and the specific bacterial protein, which is responsible for the sensitization, is now found in several diseases other than tuberculosis, such as tonsillitis, rheumatism, scarlet fever, typhoid fever, sinusitis, bronchitis, etc. In fact, the presence of both humoral and cellular effects is gradually being recognized as a part of the immunity response in an ever increasing group of infections.

Where sensitization exists it exerts a protective influence against the specific bacteria which are responsible for it. It attempts to hold the bacteria to the place of implantation and impedes their passage through the tissues. By its action upon bacterial protein it causes a local inflammatory reaction, the *allergic reaction*, which, in reality becomes the local manifestations of the disease. As a result of the reaction, bacteria are detained or held at the point of first entrance, many of them are destroyed, and in case infection occurs the reaction favors healing.

In tuberculosis the allergic reaction causes the local pathology of exudation, proliferation, caseation, and destruction; it causes the symptoms of the disease and the evidences found on palpation, percussion, and auscultation; it causes the reaction of the cells to tuberculin, the shadows shown on the x-ray film, and the necrosis which is productive of bacillus-bearing sputum. Whenever tuberculoprotein escapes from a focus and circulates in the body fluids, if sufficiently concentrated, it causes reaction, mild or severe, in all unhealed foci. This is the cause of the widespread signs of activity in pulmonary tuberculosis